

Applicant : Stephan R. Yhann
Serial No. : 09/945,113
Filed : August 31, 2001
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Attorney's Docket No.: 07844-477001 / P441

Amendments to the Drawings:

The attached replacement sheets of drawings include changes to FIGS. 4 and 6. The replacement sheets replace the original sheets including FIGS. 4 and 6.

In FIG. 4, reference number 430 has been inserted. The specification refers to reference number 430 on page 8, lines 11-13.

In FIG. 6, reference numbers 600 and 615 have been removed.

REMARKS

Claims 1-54 are pending in the present application. Claims 1, 3-7, 9-10, 12-16, 18-19, 21-25, 27-28, 30-34, 36-37, 39-43, 46, 48-52 and 54 have been amended. Claims 8, 17, 26, 35, 44, and 53 have been cancelled. Reconsideration and reexamination are respectfully requested in view of the amendments and the following remarks.

1. Objection to the Declaration

The Examiner objected to the declaration. The Examiner indicated during a telephone conversation on May 2, 2005 that the signed Declaration and Power of Attorney of the Applicant, sent to the Commissioner for Patents by first class mail on December 6, 2001 as part of a Response to Notice to File Missing Parts of Application, was not received. A complete copy of the Response to Notice to File Missing Parts of Application is included with this response along with a copy of the Return Receipt Postcard stamped by the Office of Initial Patent Examination on January 17, 2002.

2. Objection to the Specification

The Examiner objected to typographical errors in the specification. The Applicant thanks the Examiner for pointing out the errors and has corrected them by amendment in this response.

3. Objection to the Claims

The Examiner objected to typographical errors in the claims. The errors are corrected by amendment in this response.

4. Objection to the Drawings

The Examiner objected to the drawings. Replacement sheets for FIGS. 4 and 6 accompany this response, as do annotated sheets showing the changes made to the figures.

5. Response to Rejections under Section 103

All claims were rejected under 35 U.S.C. § 103(a).

Claims 1, 2, 5, 8, 10, 11, 14, and 17 were rejected over U.S. Patent 5,715,331 to Hollinger ("Hollinger") in view of European Patent Application EP0840500 A2 to Rocheleau ("Rocheleau"). The applicant respectfully traverses the rejections.

Hollinger describes a system for decomposing a raster image into image data and vector data to create a composite image. *See Hollinger, abstract.* An edge is detected in the raster image, and a vector image of the detected edge is generated. *See Hollinger, column 3, lines 13-20.* The edge information can be removed from the raster image to reduce the storage needed for the raster image. *See Hollinger, column 3, lines 33-38.* The raster image and the vector image are stored as a composite image. *See Hollinger, column 3, lines 39-45.* When the composite image is printed or displayed, the vector image is rasterized and combined with the raster image. *See Hollinger, column 3, lines 46-53.*

Rocheleau describes a method for trapping an edge on a color page independent of an output device. *See Rocheleau, abstract.* The trapped edge can be evaluated to determine whether it should be trapped when it is output to a specific device. *See Rocheleau, column 7, lines 27-31.* The colors in the color space of the specific output device are evaluated to determine whether the edge should be trapped. *See Rocheleau, column 7, lines 41-43.* Edges that have a color that is created by the device using a mixture of at least two inks, one of which is a blackish ink, typically are trapped. *See Rocheleau, column 7, line 51 to column 8, line 3.*

As amended, claim 1 recites a method for identifying, in a device space (*e.g.*, of a printer or monitor), a centerscan object color along an edge between an overscan object and a centerscan object. An overscan object is an object (*e.g.*, a vector object) whose color, when rendered in the device space, is assigned to each device space pixel that is intersected by the object and in which the object is visible. A centerscan object is an object (*e.g.*, a raster image) whose color at a point corresponding to the center of a device space pixel is used to color the device space pixel when visible portions of the centerscan object are rendered. A set of overscan boundary pixels is identified in the device space, where the overscan boundary pixels are device space pixels that are intersected by the edge. A set of centerscan boundary pixels is identified in the device space, where each centerscan boundary pixel is a device space pixel on the centerscan object side of the edge that is adjacent to an overscan boundary pixel. Each centerscan boundary pixel is mapped to the centerscan object to identify a color of the centerscan boundary pixel. This method has the

advantage of accurately identifying colors along an edge between an overscan object and a centerscan object without requiring that the objects be rasterized in the device space.

Neither Hollinger nor Rocheleau teach or suggest identifying, in a device space, a set of overscan boundary device space pixels intersected by an edge and identifying a set of centerscan boundary device space pixels adjacent to the overscan boundary pixels. Neither Hollinger nor Rocheleau teach or suggest mapping a centerscan boundary pixel to the centerscan object to identify a color for the pixel. Indeed, Hollinger does not even discuss identifying or mapping specific device-space pixels. Rocheleau discusses a device color space, but, like Hollinger, does not discuss identifying or mapping specific device-space pixels. For at least these reasons, claim 1 and dependent claims 2 and 5 are allowable over Hollinger and Rocheleau.

As amended, claim 10 recites a computer program product with features corresponding to those of claim 1. For at least the reasons set forth above with respect to claim 1, claim 10 and dependent claims 11 and 14 are allowable over Hollinger and Rocheleau.

Claims 4 and 13 were rejected over Hollinger in view of Rocheleau further in view of U.S. Patent 5,542,052 to Deutsch et al. (“Deutsch”). Claims 3 and 12 were rejected over Hollinger in view of Rocheleau further in view of U.S. Patent 6,031,544 to Yhann (“Yhann”). Claims 6, 7, 15, and 16 were rejected over Hollinger in view of Rocheleau further in view of U.S. Patent 6,345,117 to Klassen (“Klassen”). Claims 9 and 18 were rejected over Hollinger in view of Rocheleau further in view of U.S. Patent 6,377,711 to Morgana (“Morgana”). The applicant respectfully traverses the rejections.

None of Deutsch, Yhann, Klassen, and Morgana, alone or when combined with Hollinger and Rocheleau, teaches or suggests all of the limitations of claims 1 and 10. For at least this reason, dependent claims 3, 4, 6, 7, 9, 12, 13, 15, 16, and 18 are allowable.

Claims 19, 20, 23, 26, 28, 29, 32, 35, 37, 38, 41, 44, 46, 47, 50, and 53 were rejected over Hollinger in view of U.S. Patent 4,855,934 to Robinson (“Robinson”). The applicant respectfully traverses the rejections.

Robinson describes a method of rendering a spatial contour texture map onto a planar polygon. *See* Robinson, abstract. A previously-stored contour map that includes a first region, a

second region, and a boundary between the regions is represented as a number of discrete, symmetrically spaced textels in a texture space. *See* Robinson, column 3, lines 55-66 and column 9, lines 45-52. The contour map is superimposed over the polygon to generate a complex shape. *See* Robinson, column 4, lines 2-23. The polygon is projected onto a pixel plane, and an intersection point of a vector and the contour map is found, where the vector extends from an origin to the contour map through the center of a polygon pixel. *See* Robinson, column 5, line 60 to column 6, line 30 and column 6, lines 46-50. The contour map is then rendered in the pixel space taking into account a distance of the intersection point from the boundary. *See* Robinson, column 8, line 53 to column 9, line 15.

As amended, claim 19 recites a method for identifying, in a device space, a centerscan object color along an edge between an overscan object and a centerscan object. The edge is mapped to a device space, and a set of device space pixels are identified that are intersected by the edge. If the center of a device space pixel that is intersected by the edge maps to the centerscan object, the pixel is identified as a centerscan boundary pixel. Otherwise, the pixel is identified as an overscan boundary pixel. A direction of the centerscan object relative to the edge is computed, and the direction is applied to each identified overscan boundary pixel to identify a corresponding centerscan boundary pixel. Each centerscan boundary pixel is mapped to the centerscan object to identify a color of the pixel.

Neither Hollinger nor Robinson teach or suggest computing a direction of a centerscan object relative to an edge, applying the direction to overscan boundary pixels to identify a corresponding centerscan boundary pixel, and mapping each centerscan boundary pixel to the centerscan object to identify the color of the pixel. The sections of Hollinger that the Examiner claims teach these steps actually describe creating a vector image from an identified edge in a raster image and then re-combining the vector and raster images for display. Neither Hollinger nor Robinson teach or suggest identifying a device space pixel as a centerscan boundary pixel if the center of the device space pixel maps to a centerscan object, and identifying the device space pixel as an overscan boundary pixel otherwise. The sections of Robinson that the Examiner claims teach these steps actually describe finding an intersection point of a vector with a contour map, where the vector extends from an origin and through the center of a pixel. Pre-stored information in Robinson's contour map is used to determine whether the intersection point is

inside or outside of a boundary on the contour map, but the boundary is not an edge between an overscan object and a centerscan object. In addition, the Applicant does not agree that it would have been obvious or desirable to combine Hollinger and Robinson. Contrary to what the Examiner asserts, Hollinger and Robinson are not primarily concerned with color correction at a color boundary. Hollinger is concerned with decomposing a two-dimensional raster image into a composite image for the purpose of image scaling, rotation, and storage, while Robinson is concerned with mapping textures in a three-dimensional space to a two-dimensional display. For at least these reasons, claim 19 and dependent claims 20 and 23 are allowable over Hollinger and Robinson.

As amended, claim 28 recites a computer program product with features corresponding to those of claim 19. For at least the reasons set forth above with respect to claim 19, claim 28 and dependent claims 29 and 32 are allowable over Hollinger and Robinson.

As amended, claim 37 recites a method for identifying, in a device space, a color along one side of an edge between a first centerscan object and a second centerscan object. The edge is mapped to a device space, and a set of device space pixels are identified that are intersected by the edge. If the center of a device space pixel that is intersected by the edge maps to the first centerscan object, the pixel is identified as a first object boundary pixel. Otherwise, the pixel is identified as a second object boundary pixel. A direction of the second centerscan object relative to the edge is computed, and the direction is applied to each identified first object boundary pixel to identify a corresponding second object boundary pixel. Each second object boundary pixel is mapped to the second centerscan object to identify a color of the pixel.

Neither Hollinger nor Robinson teach or suggest computing a direction of a second centerscan object relative to an edge, applying the direction to first object boundary pixels to identify a corresponding second object boundary pixel, and mapping each second object boundary pixel to the second centerscan object to identify the color of the pixel. Neither Hollinger nor Robinson teach or suggest identifying a device space pixel as a first object boundary pixel if the center of the device space pixel maps to a first centerscan object, and identifying the device space pixel as a second object boundary pixel otherwise. For at least these reasons, claim 37 and dependent claims 38 and 41 are allowable over Hollinger and Robinson.

As amended, claim 46 recites a computer program product with features corresponding to those of claim 37. For at least the reasons set forth above with respect to claim 37, claim 46 and dependent claims 47 and 50 are allowable over Hollinger and Robinson.

Claims 21, 30, 39, and 48 were rejected over Hollinger in view of Robinson further in view of Yhann. Claims 22, 31, 40, and 49 were rejected over Hollinger in view of Robinson further in view of Deutsch. Claims 24, 25, 33, 34, 42, 43, 51, and 52 were rejected over Hollinger in view of Robinson further in view of Klassen. Claims 27, 36, 45, and 54 were rejected over Hollinger in view of Robinson further in view of Morgana. The applicant respectfully traverses the rejections.

None of Deutsch, Yhann, Klassen, and Morgana, alone or when combined with Hollinger and Robinson, teaches or suggests all of the limitations of claims 19 and 28. For at least this reason, dependent claims 21, 22, 24, 25, 27, 30, 31, 33, 34, and 36 are allowable.

None of Deutsch, Yhann, Klassen, and Morgana, alone or when combined with Hollinger and Robinson, teaches or suggests all of the limitations of claims 37 and 46. For at least this reason, dependent claims 39, 40, 42, 43, 45, 48, 49, 51, 52, and 54 are allowable.

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6. Conclusion

The applicant submits that all claims are in condition for allowance, and asks that all claims be allowed. The applicant believes that no fee is due with the present reply. If, however, there are charges or credits, please apply them to deposit account 06-1050.

Respectfully submitted,

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Attachments: - Replacement Sheets of Fig. 4 and 6 (2 sheets)
- Annotated Sheets Showing Changes of Fig. 4 and 6 (2 sheets)
- Copy of the Response to Notice to File Missing Parts of Application mailed
December 6, 2001 (6 pgs.)

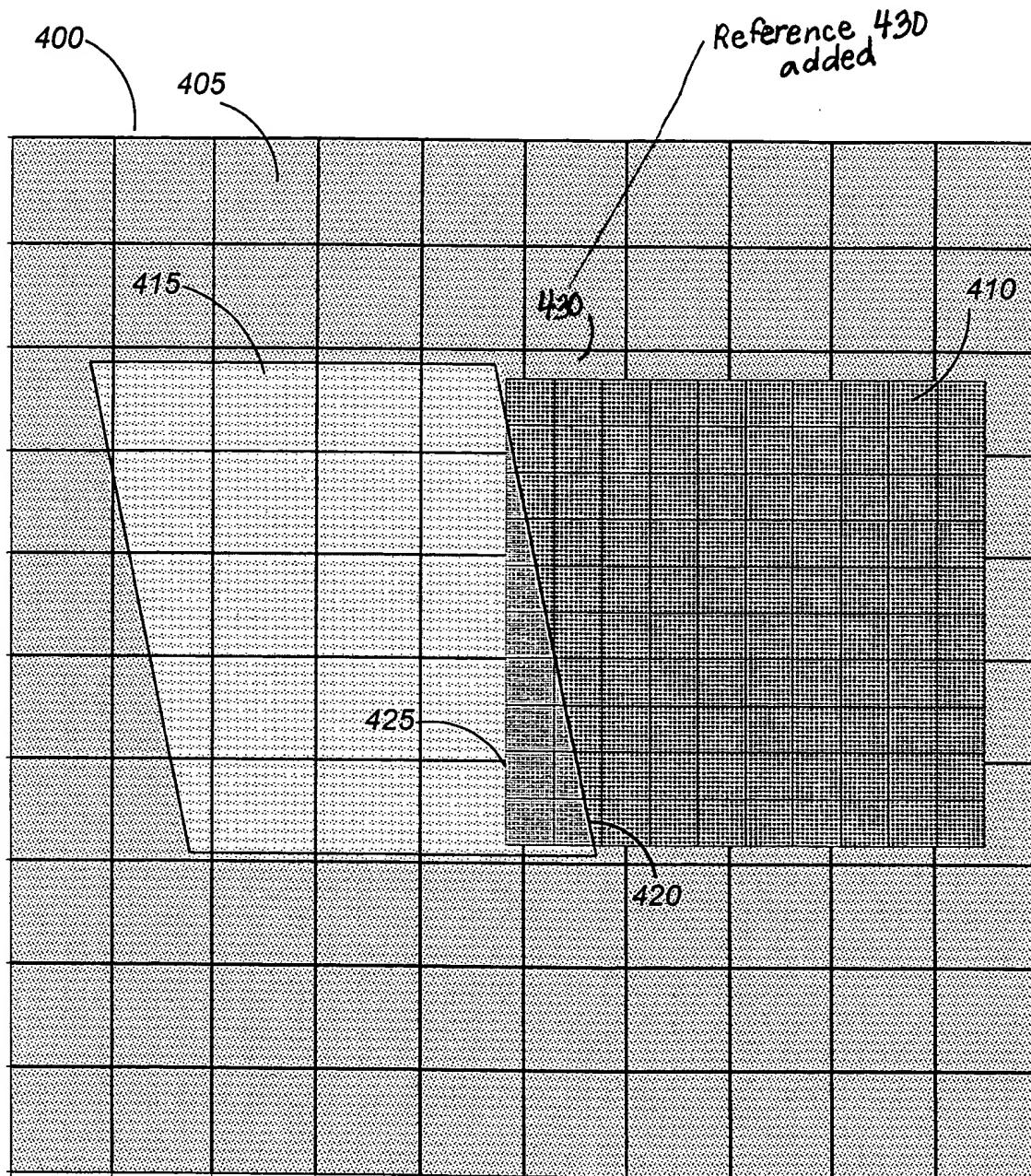


FIG. 4

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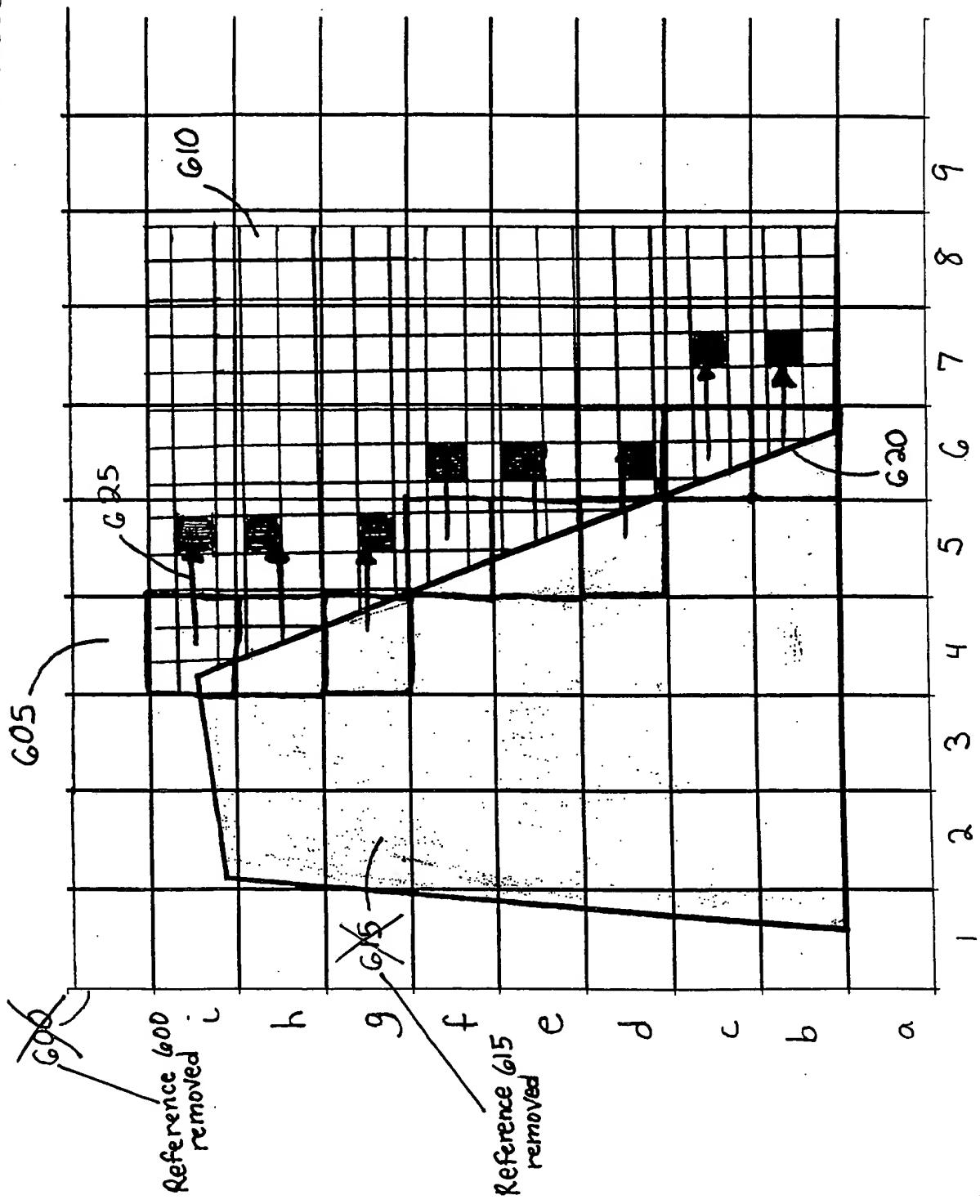


FIG. 6